

# NMDCAT

## SUPER FINAL PAPER-1

Total MCQs: 200

Max. Marks: 200

### BIOLOGY

- Q.1 The enzymes of lysosomes are synthesized on/by:  
a. Smooth endoplasmic reticulum  
b. Rough endoplasmic reticulum  
c. Chloroplast  
d. Golgi apparatus
- Q.2 Which of the following structures is absent in higher plants and found in animal cells?  
a. Cytoskeleton  
b. Mitochondria  
c. Centriole  
d. Cytoplasm
- Q.3 The soluble part of the cytoplasm or fluid that remains when all organelles are removed is known as:  
a. Cytosol  
b. Solution  
c. Gelatin material  
d. Cytoplasm
- Q.4 The process by which unwanted structures within the cell are engulfed and digested with the help of lysosome is known as:  
a. Endocytosis  
b. Autophagy  
c. Exocytosis  
d. Hydrolysis
- Q.5 Chemically, the plasma membrane is composed of:  
a. Phospholipids only  
b. Lipids and proteins  
c. Lipids and carbohydrates  
d. Glycoproteins
- Q.6 Endoplasmic reticulum contains a system of flattened membrane bounded sacs which are named as:  
a. Cristae  
b. Marks  
c. Cisternae  
d. Tubules
- Q.7 Carbohydrates are organic molecules and contain three elements:  
a. Carbon, water and oxygen  
b. Carbon, sulphur and hydrogen  
c. Carbon, calcium and hydrogen  
d. Carbon, hydrogen and oxygen
- Q.8 These monosaccharides are frequently associated with the nucleotides of both DNA and RNA:  
a. Trioses  
b. Tetroses  
c. Pentoses  
d. Hexoses
- Q.9 Identify the amino acid in which the R-group is hydrogen:  
a. Alanine  
b. Leucine  
c. Valine  
d. Glycine
- Q.10 Myosin tail is a \_\_\_\_\_ type of protein.  
a. Catalytic  
b. Regulatory  
c. Globular  
d. Fibrous
- Q.11 Which of the following is an example of unsaturated fatty acid?  
a. Acetic acid  
b. Butyric acid  
c. Oleic acid  
d. Palmitic acid
- Q.12 Which of the following is a purine?  
a. Cytosine  
b. Thymine  
c. Uracil  
d. Guanine
- Q.13 All coenzymes are derived from:  
a. Proteins  
b. Carbohydrates  
c. Metal ions  
d. Vitamins
- Q.14 The competitive inhibitors have structural similarity with:  
a. Active site  
b. Binding site  
c. Substrate  
d. Co-enzyme
- Q.15 Which one of the following is the optimum pH of pancreatic lipase?  
a. 7.60  
b. 8.00  
c. 9.00  
d. 9.70
- Q.16 Glycolysis is the breakdown of glucose into two molecules of:  
a. Glycerate  
b. Lactic acid  
c. Pyruvate  
d. Succinic acid

- Q.17 Some electrons from the second primary acceptor may pass back to chlorophyll molecule by electron carrier system yielding ATP. This process is called:  
 A. Phosphorylation  
 B. Photophosphorylation  
 C. Non-cyclic photophosphorylation  
 D. Cyclic photophosphorylation
- Q.18 Total NADH formed by one glucose molecule during Krebs cycle are:  
 a. 6  
 b. 3  
 c. 8  
 d. 18
- Q.19 One molecule of  $\text{FADH}_2$  is produced in Krebs cycle during conversion of:  
 a. Fumarate  $\rightarrow$  Malate  
 b. Succinate  $\rightarrow$  Fumarate  
 c. Malate  $\rightarrow$  Oxaloacetate  
 d.  $\alpha$ -Ketoglutarate  $\rightarrow$  Succinate
- Q.20 The end product of anaerobic respiration in humans and other animals is:  
 a. Pyruvic acid  
 b. Ethanol  
 c. Lactic acid  
 d. Glucose
- Q.21 Oxidative phase of glycolysis starts with dehydrogenation of:  
 a. Glucose  
 b. Fructose 6-phosphate  
 c. Glyceraldehyde 3-phosphate  
 d. NADH
- Q.22 Pick correct sequence of steps of infectious cycle of HIV:  
 1. Transcription  
 2. Uncoating  
 3. Translation  
 4. Reverse transcription  
 5. Integration  
 6. Release  
 a. 1,2,3,4,5,6  
 b. 2,4,5,1,3,6  
 c. 3,5,1,2,4,3  
 d. 3,2,1,4,5,6
- Q.23 HIV is classified as:  
 a. Bacteriophage  
 b. Oncovirus  
 c. Retrovirus  
 d. Icosahedral virus
- Q.24 Taxonomy includes the arrangement of organisms into different taxa. Which of the following represents the correct hierarchy of various taxa of classification?  
 a. Species, genus, family, order, class, phylum  
 b. Order, family, class, phylum, kingdom  
 c. Species, genus, order, family, class, phylum  
 d. Phylum, class, order, family, genus, Species
- Q.25 Capsid, the protective coat of a virus is made up of \_\_\_\_\_ subunits known as capsomeres.  
 a. Lipid  
 b. Protein  
 c. RNA  
 d. DNA
- Q.26 Which statement about bacteria is true?  
 a. Gram positive bacteria have more lipids in their cell wall  
 b. Lipids are absent in cell wall of both gram positive and gram negative bacteria  
 c. Both have equal amount of lipids  
 d. Gram negative bacteria have more lipids in their cell wall
- Q.27 Which of the following is not found in bacteria?  
 a. Cytoskeleton  
 b. Cell wall  
 c. Circular DNA  
 d. Cytoplasm
- Q.28 Fungal enzymes can break all of the following cell wall components except:  
 a. Cellulose  
 b. Lignin  
 c. Chitin  
 d. Cutin
- Q.29 Which of the following is not a character of protists?  
 a. They are primarily terrestrial  
 b. Unicellular or simple multicellular  
 c. They do not develop from blastula  
 d. They are eukaryotic organisms
- Q.30 Double fertilization is characteristic feature of:  
 a. Angiosperms  
 b. Tracheophytes  
 c. Gymnosperms  
 d. Bryophytes
- Q.31 Which of the following is a diploid structure in plants?  
 a. Oosphere  
 b. Spore  
 c. Oospore  
 d. Ovum
- Q.32 \_\_\_\_\_ are the first group of invertebrates which have developed a nervous system.  
 a. Nematoda  
 b. Coelenterata  
 c. Annelida  
 d. Platyhelminthes
- Q.33 The absorbed water can rise to highest point by:  
 a. Root pressure  
 b. Imbibition force  
 c. Force of capillary  
 d. Transpiration pull

- Q.34** Right atrium is separated from right ventricle by:
- Bicuspid valve
  - Tricuspid valve
  - Semilunar valve
  - Inter atrial septum
- Q.35** The flaps of tricuspid valves are attached to the muscular extensions of right ventricle known as:
- Smooth muscles
  - Papillary muscles
  - Inter coastal muscle
  - Skeletal muscles
- Q.36** Histamine is secreted by which one of the following cells?
- Basophils
  - Platelets
  - Monocyte
  - Eosinophils
- Q.37** The right atrium of the heart usually receives the:
- Deoxygenated blood
  - Oxygenated blood
  - Filtered blood
  - Non-filtered blood
- Q.38** T-lymphocytes become mature and competent under the influence of:
- Liver
  - Bursa of fabricius
  - Thymus gland
  - Spleen
- Q.39** In passive immunity which of the following components are injected into the body?
- Immunoglobulins
  - Antigens
  - Immunogens
  - Saliva
- Q.40** T-lymphocytes recognize antigen and attack microorganisms or transplanted organ and tissues. This effect is called:
- Cell mediated response
  - Humoral immune response
  - Active immunity
  - Passive immunity
- Q.41** The process through which the body maintains the internal environment from the fluctuations of external environment is called as:
- Behavior of organisms
  - Adaptation
  - Thermoregulation
  - Homeostasis
- Q.42** The site of filtration in nephrons is:
- Proximal end and distal end
  - Ascending arm and descending arm
  - Loop of Henle
  - Glomerulus and Bowman's capsule
- Q.43** Which one of the following is responsible for the production of concentrated urine?
- Juxtamedullary nephrons
  - Cortical nephrons
  - Proximal tubule
  - Distal tubule
- Q.44** Reabsorption of useful constituents normally takes place in which one of the following?
- Proximal tubule
  - Distal tubule
  - Bowman's capsule
  - Glomerulus
- Q.45** Ascending loop of Henle does not allow outflow of:
- Na<sup>+</sup> ions
  - K<sup>+</sup> ions
  - Cl<sup>-</sup> ions
  - Water
- Q.46** Which of the following function of skeletal system is accomplished with the help of skeletal muscles?
- Blood cell production
  - Mineral homeostasis
  - Movement
  - Protection
- Q.47** The functional unit of skeletal muscles is actually a region of:
- Myofibrils
  - Myofilaments
  - A-band
  - I-band
- Q.48** Where can we find H-zone in the figure of fine structure for skeletal muscle's myofibril?
- In the mid of A-band
  - In I-band
  - Besides the Z-line
  - Along the I-band
- Q.49** In the skin, the receptors are concerned with the detection of at least:
- Three different senses
  - Four different senses
  - Five different senses
  - Six different senses
- Q.50** Synapse between two consecutive neurons is an example of:
- Neuromuscular junction
  - Chemical synapse
  - Electrical synapse
  - Synaptic cleft





- Q.51  $\text{Na}^+$  influx causes \_\_\_\_\_ of neurolemma.  
a. Repolarization  
b. Depolarization  
c. Hyperpolarization  
d. Resting membrane potential
- Q.52 Which among the following endocrine glands is not paired in humans?  
a. Adrenal  
b. Parathyroid  
c. Testes  
d. Thyroid
- Q.53 Hypothalamic releasing factors reach anterior pituitary through \_\_\_\_\_ blood and tropic hormones are carried away from anterior pituitary by \_\_\_\_\_ blood.  
a. Venous, arterial  
b. Venous, venous  
c. Arterial, arterial  
d. Arterial, venous
- Q.54 Breakdown of endometrium during menstruation is due to:  
a. Increase in level of LH  
b. Decrease in level of Progesterone  
c. Increase in level of Progesterone  
d. Increase in level of Estrogen
- Q.55 Yellowish glandular structure formed after the release of egg from follicle is called:  
a. Corpus callosum  
b. Graafian follicle  
c. Corpus luteum  
d. Follicle atresia
- Q.56 In which phase of human female menstrual cycle, endometrium prepares for the implantation of embryo?  
a. Proliferative phase  
b. Menstrual phase  
c. Secretory phase  
d. Ovulation phase
- Q.57 The region of the chromosome or more specifically, a length of the DNA molecule, which has a particular nucleotides sequence that codes for specific protein, is called \_\_\_\_\_.  
a. Locus  
b. Gene  
c. Allele  
d. Kinetochore
- Q.58 Homozygous means:  
a. Having two identical alleles of a gene  
b. Having two identical genes  
c. Alleles in an organism  
d. Two different alleles of a gene
- Q.59 In genetics, the term locus refers to the \_\_\_\_\_ of the gene on the chromosome.  
a. Frequency  
b. Copy  
c. Position  
d. Inversion
- Q.60 Identify the correct option with respect to  $F_2$  generation of Mendel's dihybrid cross:  
a. 4 phenotypes and 16 genotypes  
b. 9 phenotypes and 4 genotypes  
c. 6 phenotypes and 8 genotypes  
d. 4 phenotypes and 9 genotypes
- Q.61 A person was married to his cousin and both are heterozygous for sickle cell anemia. Among their four kids, what will be proportion of affected homozygotes?  
a. 50%  
b. 25%  
c. 75%  
d. 100%
- Q.62 Which one of the following is X-linked trait?  
a. Male pattern baldness  
b. Diabetes mellitus  
c. Haemophilia  
d. Erythroblastosis foetalis
- Q.63 If a carrier hemophilic female is married to a hemophilic male. What will be the ratio of presence of haemophilia in the children?  
a. 100% all females and males will be hemophilic  
b. Carrier female 25% hemophilic female 25%, 25% normal male and 25% hemophilic male  
c. Females and males both have 50% chances to getting haemophilia  
d. Females have 50% chances of getting haemophilia and females will be 100% hemophilic
- Q.64 In Avery Experiment, the transforming ability was lost when Avery and Macleod added:  
a. Proteases  
b. DNAase  
c. RNAase  
d. Methyl transferase
- Q.65 The eukaryotic mRNA is modified by the addition of cap. The cap is in the form of:  
a. Poly-A nucleotides linked to 3' end  
b. 7-methyl GTP linked 5' to 5'  
c. 7-methyl GTP linked 5' to 3'  
d. Poly-A nucleotides linked to 5' end
- Q.66 Elongation factor attaches aminoacyl-tRNA at:  
a. P-site  
b. E-site  
c. A-site  
d. I-site



Q.67 Which statement regarding prokaryotic and eukaryotic transcription is correct?

	Prokaryote	Eukaryote
a.	Three types of RNA polymerases	Only single type of RNA polymerase
b.	Takes place in cytoplasm	Takes place in nucleus
c.	5' end of mRNA is formed first	3' end of mRNA is formed first
d.	Promotor regions lie at -25 and -70	Promotor regions lie at -10 and -35

Q.68 All of the following enzymes are involved in formation of phosphodiester linkage during DNA replication except:

- a. Helicase
- b. DNA Polymerase
- c. Primase
- d. DNA Ligase

Q.69 Which of the following propounds for the first time that genes reside on the chromosomes?

- a. Cell theory
- b. The Meselson-Stahl experiment
- c. The chromosomal theory of inheritance
- d. Hardy-Weinberg theorem

Q.70 If the genetic code is made up of three nucleotides, the total possible genetic codes will be:

- a. 4
- b. 20
- c. 64
- d. 61

Q.71 According to Darwin, which of the following plays a prime role in evolution?

- a. Overproduction
- b. Phenotypic variation
- c. Genotypic variation
- d. Use & disuse of organs

Q.72 The structures which are reduced during the course of evolution and have no apparent functions are called:

- a. Regenerated organs
- b. Saltatory organs
- c. Vestigial organs
- d. Useless organs

Q.73 The comparative embryology of all vertebrates shows development of:

- a. Hairs
- b. Gill pouches
- c. Scales
- d. Fins

Q.74 The enzyme used to isolate gene from DNA is:

- a. Helicase
- b. Reverse transcriptase
- c. Restriction enzymes
- d. DNA polymerase

Q.75 In DNA finger printing process, the use of \_\_\_\_\_ produces distinctive pattern on autoradiography or X-ray film.

- a. Restriction enzymes
- b. Micro satellites
- c. Macro satellites
- d. Probes for genetic markers

Q.76 In which process multiple copies of the desired genes are produced?

- a. Polymerase chain reaction
- b. Gene sequencing
- c. Analyzing DNA
- d. DNA finger printing

Q.77 The agent which separates the two strands of DNA in PCR is:

- a. DNA ligase
- b. Heat
- c. Primer
- d. Helicase

Q.78 Which of the following option is correct regarding sequence of different steps in PCR?

- a. Repetition → Addition of Primer → Denaturation → Polymerization
- b. Denaturation → Addition of Primer → Polymerization → Repetition
- c. Addition of Primer → Polymerization → Denaturation → Repetition
- d. Polymerization → Addition of Primer → Denaturation → Repetition

Q.79 Plasmids were discovered by investigators studying \_\_\_\_\_ of *E. coli*.

- a. Lytic cycle
- b. Sex life
- c. Lysogenic cycle
- d. Molecular mechanism of induction

Q.80 All of the following biotechnology products are produced by using transgenic bacteria except:

- a. Human growth hormone
- b. Tissue plasminogen activator
- c. Haemophilia factor VIII
- d. Hepatitis C vaccine

# CHEMISTRY

- Q.81 Electronic configuration of different elements is given. Which has highest 1<sup>st</sup> ionization energy
- $1s^2 2s^2 2p^6 3s^2 3p^1$
  - $1s^2 2s^2 2p^6 3s^2 3p^2$
  - $1s^2 2s^2 2p^6 3s^2 3p^3$
  - $1s^2 2s^2 2p^6 3s^2 3p^4$
- Q.82 Which one of the following is not a coplanar molecule
- HCN
  - $CCl_2F_2$
  - $C_2H_2$
  - $C_2H_4$
- Q.83 Metallic conduction involves the relatively free movement of their \_\_\_\_\_ throughout the metallic lattice
- Atoms
  - Ions
  - Molecules
  - Electrons
- Q.84 Which of following is correct expression of Kc for ammonia synthesis?
- $x^2/V(a-x)$
  - $4x^2/V[(a-2x)^2(b-x)]$
  - $4x^2/V(a-x)$
  - $4x^2 \cdot V^2/(a-x)(b-3x)$
- Q.85 The units of 3<sup>rd</sup> order rate constant are usually expressed as
- $\text{mole}^{-1} \text{dm}^3 \text{s}^{-1}$
  - $\text{mole}^{-1} \text{dm}^{-3} \text{s}^{-1}$
  - $\text{mole}^{-2} \text{dm}^6 \text{s}^{-1}$
  - $\text{mole}^{-2} \text{dm}^{-6} \text{s}^{-1}$
- Q.86 The rate equation for a gas phase reaction is  $\text{rate} = k[A][B]$ . If pressure on reaction mixture is tripled, then the rate of reaction increases by
- Two times
  - nine times
  - six times
  - 8 times
- Q.87 Which group will be most preferred while naming aromatic compounds
- COOH
  - OH
  - CHO
  - F
- Q.88 Which isomer of  $C_4H_{10}O$  forms two alkenes on dehydration?
- Butan-1-ol
  - Butan-2-ol
  - 2-methylpropan-1-ol
  - 2-methylpropan-2-ol
- Q.89 The ionization constant of phenol is higher than that of ethanol because
- Phenoxide ion is a stronger base than ethoxide ion
  - Phenoxide ion is stabilized through delocalization of electrons
  - Phenoxide ion is less stable than ethoxide ion
  - Phenoxide ion is bulkier than ethoxide ion
- Q.90 The IUPAC name of  $CH_3 - CH(C_2H_5) - CH_2 - C(CH_3)_2 - CH_3$
- 2,2-dimethyl 4-ethyl pentane
  - 2,2-Dimethyl heptane
  - Nonane
  - 2,2,4-Trimethyl hexane
- Q.91 If ozonolysis of an alkene produce acetone and propionaldehyde, then the alkene is
- 2-Methyl-1-pentene
  - 2-Methyl-3-Ethyl-propene
  - 2-Methyl-2-pentene
  - 4-Methyl-3-pentene
- Q.92 The three dimensional twisting and folding of polypeptide chain results in
- Primary structure
  - Secondary structure
  - Tertiary structure
  - Quaternary structure
- Q.93 The incorrect oxidizing strength order is
- $Cl_2 > F_2$
  - $Br_2 > I_2$
  - $Cl_2 > I_2$
  - $F_2 > I_2$
- Q.94 When  $CuSO_4$  is electrolyzed in aqueous solution using copper electrodes, then the substance which is deposited at the cathode is
- Copper metal
  - Hydrogen
  - Copper ions
  - Oxygen
- Q.95 If  $E_f$  and  $E_b$  are the activation energies for forward and backward reaction respectively how these values can be compared for the exothermic reaction
- $E_f > E_b$
  - $E_f = E_b$
  - $E_f < E_b$
  - cannot be predicted

- Q.96 The rate law for the reaction  $A + 2B \rightarrow \text{products}$  is  $\text{Rate} = k[A][B]^2$  when concentration of 'B' is increased from X to 3X by keeping the concentration of A constant. By what factor the rate of reaction will increase
- 3
  - 6
  - 9
  - 27
- Q.97 Along a period, atomic radius decreases. This gradual decrease in radius is due to
- Increase in number of shells
  - Increase in number of protons in the nucleus
  - Increase in shielding effect
  - Decrease in atomic number
- Q.98 Not a feasible reaction
- $\text{CuO} + \text{H}_2 \longrightarrow \text{Cu} + \text{H}_2\text{O}$
  - $\text{Cu} + 2\text{AgNO}_3 \longrightarrow \text{Cu}(\text{NO}_3)_2 + \text{Ag}$
  - $2\text{KBr} + \text{I}_2 \longrightarrow 2\text{KI} + \text{Br}_2$
  - $\text{Fe} + \text{H}_2\text{SO}_4 \longrightarrow \text{FeSO}_4 + \text{H}_2$
- Q.99 The function of dehydrating agent in a reaction is to remove
- Oxygen
  - Water
  - Hydrogen
  - Impurities
- Q.100 Which of the following pairs have minimum number of valence electron
- Ti, V
  - Mn, Fe
  - Cr, Cu
  - Cu, Sc
- Q.101 In general the characteristics reaction of an organic family depends upon
- Functional group
  - Double bonds
  - Number of carbon atom
  - Molecular mass
- Q.102 Geometric isomerism is shown by:
- 1-Butene
  - 1-Chloro-2-bromopropene
  - 1-Hexene
  - 1,1-dichloro propene
- Q.103 The catalyst which proves to be most effective in case of hydrogenation at room temperature is
- Ni
  - Hg
  - Pt
  - Ag
- Q.104 Ethyl iodide reacts with ammonia to produce
- Ethyl amine
  - Ethane
  - Ethanol
  - Methane
- Q.105 Which of the following gives iodoform test
- Ethanol
  - Ethanal
  - Propanone
  - All of the above
- Q.106 Phenol can be distinguished from ethyl alcohol by following reagent
- $\text{Na} / \text{liq. NH}_3$
  - $\text{Br}_2 / \text{H}_2\text{O}$
  - $\text{AlCl}_3$
  - $\text{NH}_4\text{OH}$
- Q.107 Acylation of benzene is the introduction of \_\_\_\_\_ on benzene
- $\text{R}-\overset{\overset{\text{O}}{\parallel}}{\text{C}}-\text{O}-$
  - $\text{Cr}-\overset{\overset{\text{O}}{\parallel}}{\text{C}}-$
  - $\text{R}-\overset{\overset{\text{O}}{\parallel}}{\text{C}}-$
  - $\text{H}-\overset{\overset{\text{O}}{\parallel}}{\text{C}}-$
- Q.108 Which reagent gives the same visible result with propanal and with propan-2-ol?
- Acidified potassium dichromate (VI)
  - 2,4-dinitrophenylhydrazine reagent
  - Sodium
  - Tollen's reagent
- Q.109 Which ester is formed when the alcohol  $\text{CH}_3\text{CH}_2\text{OH}$  is reacted with  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CO}_2\text{H}$ ?
- Ethyl propanoate
  - Ethyl butanoate
  - Propyl ethanoate
  - Butyl ethanoate
- Q.110 If value of Azimuthal quantum number ( $\ell$ ) is 3, the value of 'm' will be
- +3, +2, +1, 0, -1, -2, -3
  - 0, 1, 2
  - 0, 1, 2, 3
  - +1, 0, +1



- Q.111 According to Lewis concept, which one is acid  
 a.  $\text{NH}_3$   
 b.  $\text{CH}_4$   
 c.  $\text{AlCl}_3$   
 d.  $\text{PH}_3$
- Q.112 The Paramagnetic property is associated with a substance which has  
 a. Charge  
 b. Neutral atoms  
 c. Unpaired electron/s  
 d. Complete octet
- Q.113 Which equation shows lattice energy for the ionic compound is  $-787\text{kJ mol}^{-1}$   
 a.  $\text{Na}_{(s)} + \frac{1}{2}\text{Cl}_{2(g)} \rightarrow \text{NaCl}_{(s)}$   
 b.  $\text{Na}_{(g)} + \text{Cl}_{(g)} \rightarrow \text{NaCl}_{(s)}$   
 c.  $\text{Na}^+_{(aq)} + \text{Cl}^-_{(aq)} \rightarrow \text{NaCl}_{(aq)}$   
 d.  $\text{Na}^+_{(g)} + \text{Cl}^-_{(g)} \rightarrow \text{NaCl}_{(s)}$
- Q.114 Which is not base catalyzed reaction of carbonyl compound like aldehyde  
 a. Addition of  $\text{NaHSO}_3$   
 b. Haloform reaction  
 c. Addition with HCN  
 d. Addition of 2,4-DNPH
- Q.115 Aldehydes can be synthesized by the oxidation of  
 a. Primary alcohols  
 b. Organic acids  
 c. Secondary alcohols  
 d. Inorganic acids
- Q.116 In crotonaldehyde functional groups are  
 a. Aldehyde and alcohol  
 b. Alcohol and ketone  
 c. Alkene and alcohol  
 d. Alkene and aldehyde
- Q.117 In the following reaction, C and D are  
 $\text{CH}_3 - \text{CO} - \text{CH}_2 - \text{CH}_2 - \text{CH}_3 + [\text{O}] \longrightarrow \text{C} + \text{D}$   
 a.  $\text{CH}_3\text{COOH} + \text{CH}_3\text{COOH}$   
 b.  $\text{CH}_3\text{COOH} + \text{CH}_3\text{CH}_2\text{COOH}$   
 c.  $\text{CH}_3\text{COOH} + \text{CH}_3\text{CH}_2\text{CH}_3$   
 d.  $\text{HCHO} + 2\text{CH}_3\text{COOH}$
- Q.118 In Tollen's reagent \_\_\_\_\_ is used for the preparation of solution  
 a. NaOH  
 b.  $\text{Ca}(\text{OH})_2$   
 c.  $\text{NH}_4\text{OH}$   
 d.  $\text{Al}(\text{OH})_3$
- Q.119 Which of the following ions has maximum electrons in last shell  
 a.  $\text{Li}^{+1}$   
 b.  $\text{Al}^{+3}$   
 c.  $\text{Mg}^{+2}$   
 d. Both b and c
- Q.120 Increase in all of the following decrease enzyme activity except  
 a. Temperature  
 b. Radiations  
 c. pH  
 d. Substrate concentration
- Q.121 The reaction of alkene with Baeyer's reagents is known as  
 a. Oxidation reaction  
 b. Hydroxylation reaction  
 c. Elimination reaction  
 d. Both a and b
- Q.122 The correct electronic configuration of Al-13 is  
 a.  $[\text{He}]3s^2, 3p^1$   
 b.  $[\text{Ne}]3s^2 3p^1$   
 c.  $[\text{Ne}]3p^3$   
 d.  $[\text{Ar}]3p^1 3s^2$
- Q.123 At absolute zero the molecular motion cease, so kinetic energy of molecules at this temperature is supposed to be  
 a. Maximum  
 b. Minimum  
 c. At infinity level  
 d. Zero
- Q.124 A gas having volume of  $10\text{dm}^3$  is enclosed in a vessel at  $0^\circ\text{C}$  and the pressure is 2.5 atm. This gas is allowed to expand until the new pressure is 2atm. What will be the new volume of the gas, if temperature is maintained at 273 K.  
 a.  $12.5\text{ dm}^3$   
 b.  $8.5\text{ dm}^3$   
 c.  $5\text{ dm}^3$   
 d.  $20\text{ dm}^3$
- Q.125 The density of water will be maximum at  
 a.  $0^\circ\text{C}$   
 b.  $-4^\circ\text{C}$   
 c.  $25^\circ\text{C}$   
 d.  $4^\circ\text{C}$
- Q.126 Which of the following has lowest vapour pressure at  $25^\circ\text{C}$   
 a. Water  
 b. Acetone  
 c. Ethanol  
 d. Ammonia

- Q.127 The solids can be classified into \_\_\_\_\_ types on the basis of arrangement of particles  
 a. 2  
 b. 4  
 c. 7  
 d. 14
- Q.128 The three factors which affects the shape of an ionic crystal / compound are  
 a. Electrostatic forces of attractions  
 b. Radius ratio of ions  
 c. Poor conductivity of ionic crystal  
 d. All of these
- Q.129 For a reversible reaction the value of  $K_c = 1$  its means that  
 a.  $[R] = [P]$   
 b.  $[R] > [P]$   
 c.  $[R] < [P]$   
 d.  $[R] = 2[P]$
- Q.130 Which of the following value of  $K_c$  indicates the reaction is almost completed?  
 a.  $K_c = 10^{-13}$   
 b.  $K_c = 1$   
 c.  $K_c = 10^5$   
 d.  $K_c = 10^{55}$
- Q.131 Which of the following reaction is favoured in forward direction on increasing concentration of reactants?  
 a.  $PCl_5 \rightleftharpoons PCl_3 + Cl_2$   
 b.  $3H_2 + N_2 \rightleftharpoons 2NH_3$   
 c.  $N_2 + O_2 \rightleftharpoons 2NO$   
 d. All of these
- Q.132 The correct S.I unit of thermal energy is  
 a. Calorie  
 b. Joule  
 c. Erg  
 d. Joule  $mol^{-1}$
- Q.133 The state function is  
 a. Macroscopic property of system  
 b. Depends upon pathway of reaction  
 c. Macroscopic property of surrounding  
 d. Microscopic property of the system
- Q.134 Which of the following metal can react with ice even at  $-100^\circ C$   
 a. Li  
 b. Na  
 c. Cs  
 d. Be
- Q.135  $KO_2$  is used for breathing purpose because it produced oxygen by reacting with  $CO_2$ .  
 $KO_2$  can be produced by reacting potassium metal with  
 a.  $CO_2$   
 b.  $O_2$   
 c.  $H_2O$   
 d.  $KNO_3$
- Q.136 The highest melting point is of  
 a. Fe  
 b. V  
 c. Cr  
 d. Mn
- Q.137 The weakest bond is  
 a. C - I  
 b. C - Br  
 c. C - Cl  
 d. C - F
- Q.138 The major product of following reaction is  
 $CH_3 - CH_2 - CH(Br) - CH_3 \xrightarrow{Alc.KOH} \text{Product}$   
 a. 1-Butene  
 b. 2-Butene  
 c. 2-Butanol  
 d. 1-Butanol
- Q.139 The co-factor of carbonic anhydrase is  
 a.  $Zn^{2+}$   
 b.  $Ca^{2+}$   
 c.  $Mg^{2+}$   
 d.  $Fe^{2+}$
- Q.140 The products of following reaction is  
 $CH_3COOH \xrightarrow{HCl/P} A$   
 a.  $CH_3CH_2OH$   
 b.  $CH_3CHO$   
 c.  $CH_2 = CH_2$   
 d.  $CH_3CH_3$

## PHYSICS

- Q.141 Calculate the average force acting on a 900 kg car when its velocity changes from  $5.0 \text{ ms}^{-1}$  to  $30 \text{ ms}^{-1}$  in a time of 12 s impulse will be  
 a. 1000 Ns  
 b. 15000 Ns  
 c. 1.6 k Ns  
 d. 1.8 k Ns
- Q.142 When two bodies of same mass undergo head on elastic collision,  
 a. Their velocities are interchanged  
 b. Their momenta are interchanged  
 c. Their speeds are interchanged  
 d. All of these

Q.143 The range of the projectile depends upon the velocity of the projection and the angle of the projection i.e  $45^\circ$ . For a fixed velocity, when the angle of projection is larger than  $45^\circ$ . Which of the following is correct?

- Both the height and the range attained by the projectile will be less
- Both the height and the range attained by the projectile will be more
- The height attained by the projectile will be less but the range is more
- The height attained by the projectile will be more but the range is less

Q.144 If the force acting on a body is doubled, then acceleration becomes

- Half
- One fourth
- Doubled
- Constant

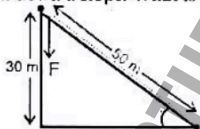
Q.145 A person of mass 60kg carries a 15kg body on the top of building 10m high in 5 minutes. He puts a power in carrying the body.

- 10W
- 30W
- 5W
- 15W

Q.146 Watt-day is the unit of following physical quantity

- Power
- Energy
- Momentum
- Force

Q.147 A stone weighing 5.0 N rolls 50 m down a slope. What is the work done by the force of gravity?



- 250 J
- 210 J
- 100 J
- 150 J

Q.148 A 500N force is applied on an object and it moves with velocity  $10\text{ms}^{-1}$ . If value of power is 2500 watt. Then what will be the angle between force and displacement

- $0^\circ$
- $60^\circ$
- $90^\circ$
- $23^\circ$

Q.149 If a car moves with uniform speed of 2m/s in a circle of circumference 3.14 m. It's angular speed is

- 4 rad/s
- 6 rad/s
- 5 rad/s
- 7 rad/s

Q.150 One complete circle is equal to:

- 2 radian
- $6\pi$  radian
- 5 radian
- 6 radian

Q.151 A wheel of radius 1 m covers an angular displacement of  $180^\circ$ . Its distance covered is

- 3.14 m
- $\pi$  rad
- 6.28 m
- 0.157 m

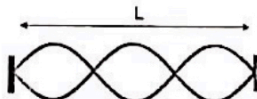
Q.152 Particle is moving in a circle of radius r with constant angular speed  $\omega$ . Its acceleration along tangent at any point of circle is

- $\frac{\omega}{r}$
- $\frac{\omega^2}{r}$
- $\omega^2 r$
- 0

Q.153 If the time period of the oscillation is 20 micro-sec, then what will be angular frequency of that oscillating body?

- $3 \times 10^5 \text{ rad/sec}$
- $3 \times 10^4 \text{ Hz}$
- 500000 Hz
- $3 \times 10^5 \text{ rad/sec}$

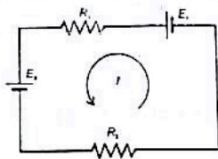
Q.154 A stretched string of length  $L = 6 \text{ m}$  resonates in three loops. What is the wavelength of the wave?



- 2 m
- 4 m
- 3 m
- 6 m



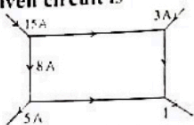
- Q.155 A shock wave is produced due to an earthquake which makes the building move in the direction of the shock wave. Which progressive wave would this be?  
 a. Longitudinal wave  
 b. Transverse wave  
 c. Material wave  
 d. Particle wave
- Q.156 In ripple tank 40 waves pass through a certain point in one second. If distance between two consecutive in phase points of the waves is 5cm, then find the speed of wave.  
 a.  $2.7 \text{ ms}^{-1}$   
 b.  $3 \text{ ms}^{-1}$   
 c.  $200 \text{ ms}^{-1}$   
 d.  $2 \text{ ms}^{-1}$
- Q.157 If an ideal gas is isothermally expanded, its internal energy will:  
 a. Increase  
 b. Decrease  
 c. Remain the same  
 d. Decrease or increase depending on the nature of the gas
- Q.158 First law of thermodynamics can be written as  $C_v \Delta T = \Delta Q - P \Delta V$ . In a change for which Boyle's law is observed, which of the following would necessarily be infinite?  
 a. Heat Absorbed  
 b. Temperature  
 c. Change in Volume  
 d. Molar Specific Heat
- Q.159 The potential at any point inside a charged sphere is  
 a. Zero  
 b. Constant inside the sphere  
 c. Constant on upper surface and at center zero  
 d. Zero as a whole
- Q.160 Two parallel metal plates separated by 2.0 cm have a potential difference of 5.0 kV. Calculate the electric force acting on a dust particle between the plates that has a charge of  $8.0 \times 10^{-19} \text{ C}$ .  
 a.  $2 \times 10^{-10} \text{ N}$   
 b.  $2 \times 10^{-13} \text{ N}$   
 c.  $1 \times 10^{-16} \text{ N}$   
 d.  $2 \times 10^{-19} \text{ N}$
- Q.161 Electric field strength of a point charge is E and electric potential is V at a distance r from the point charge. What is the electric potential at a point for the same point charge where electric field strength is E/4?  
 a. V/4  
 b. 4V  
 c. V/2  
 d. 2V
- Q.162 If the distance between two-point charges to becomes double then the coulomb's force will be  
 a.  $\frac{F}{2}$   
 b. 2F  
 c. 4F  
 d.  $\frac{F}{4}$
- Q.163 The mathematical form of Kirchhoff's second rule is ( $E_1 > E_2$ )



- a.  $E_1 + I_2 R_2 - E_2 - I_1 R_1 = 0$   
 b.  $E_1 - I R_1 + E_2 - I R_2 = 0$   
 c.  $E_1 - I_2 R_2 - E_2 - I_1 R_1 = 0$   
 d.  $E_1 - I R_1 - E_2 - I R_2 = 0$

- Q.164 A copper wire has length L and cross-sectional area A. Its resistance is R. If we halved the length and halved the diameter of wire, then what will be the resistance of this wire?  
 a. R  
 b. 3R  
 c. 2R  
 d. 4R
- Q.165 The power of an electric bulb is 100W. It is connected to 110V power supply. The resistance of electric bulb will be?  
 a. 11 ohm  
 b. 121 ohm  
 c. 20 ohm  
 d. 200 ohm

Q.166 The value of current  $I$  in the given circuit is



- a. 3 A  
c. 23 A  
b. 13 A  
d. -3 A

Q.167 A positively charged particle moving due east enters a region of uniform magnetic field directed vertically upwards. The particle will

- a. Continue to move due east  
b. Move in a circular orbit with its speed unchanged  
c. Move in a circular orbit with its speed increases  
d. Get deflected vertically upwards

Q.168 A charged particle enters at  $30^\circ$  to the magnetic field. Its path becomes

- a. Helical  
c. Circular  
b. Elliptical  
d. Straight line

Q.169 A step-up transformer is used on a 120 V line to provide a potential difference of 2400 V. If the primary coil has 75 turns, the number of turns in the secondary coil is

- a. 1500  
c. 150  
b. 1200  
d. 1575

Q.170 To enhance the magnetic flux, the primary and secondary coils of the transformer are wound on

- a. Aluminium  
c. Copper core  
b. Soft iron core  
d. Steel

Q.171 The north pole of a magnet is brought near a metallic ring. The direction of the induced current in the ring will be

- a. Clockwise  
c. Towards north  
b. Anticlockwise  
d. Towards south

Q.172 The output voltage of a transformer is 3 times the input voltage then turns ratio will be

- a.  $1/3$   
c. 1  
b. 3  
d. 6

Q.173 In full wave rectification, the output D.C. voltage across the load is obtained for

- a. The positive half cycle of input A.C.  
c. The complete cycle of input A.C.  
b. The negative half cycle of input A.C.  
d. All of the above.

Q.174 To reduce ripples in the output of bridge rectifier we should use

- a. Diodes having low forward resistance  
c. Low frequency A.C.  
b. Diodes having high forward resistance  
d. A filter circuit

Q.175 If the K.E of a free electron doubles then its de-Broglie wavelength become \_\_\_\_ of initial.

- a. 50%  
c. 150%  
b. 70%  
d. 200%

Q.176 Red light is used in photographic dark room because of:

- a. More frequency, less wavelength  
c. Less frequency, more wavelength  
b. Less frequency, less wavelength  
d. More frequency, more wavelength

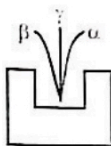
Q.177 Balmer series lies in \_\_\_\_\_ region.

- a. Visible  
c. Ultraviolet  
b. Invisible  
d. Infra-red

Q.178 Fraction of the decayed atoms in a radioactive sample after 'n' half-lives will be

- a.  $\frac{1}{2}$   
c.  $2^n$   
b.  $\frac{1}{2^n}$   
d.  $\left(1 - \frac{1}{2^n}\right)$

- Q.179 In a radioactive phenomenon, observation shown in figure where  $\alpha$  deviates lesser than  $\beta$  in same electric or magnetic field (not shown in the figure). What is the reason of less deviation of  $\alpha$ ?



- a.  $\alpha$  is a lighter particle  
b.  $\alpha$  is very fast moving particle  
c.  $\alpha$  is heavier particle  
d. None of these
- Q.180 Which of the following is the percentage of the original quantity of a radioactive material left after five half-lives approximately?
- a. 3%  
b. 10%  
c. 5%  
d. 20%

## ENGLISH

### SPOT THE ERROR:

In the first type of sentences, some segments of each sentence are underlined. Your task is to identify that underlined segment of the sentence, which contains the mistake that needs to be corrected.

- Q.181 Pale sunlight filters from the trees, throwing veiled patches of gold onto the brown river where cattle drink under the watchful eye of a young herdsman.
- a. b.  
c. d.
- Q.182 His father as a young man had been one of Napoleon's conscripts and won the Cross of the Legion of Honor on the field of battle, for valor and fidelity.
- a. b. c.  
d.
- Q.183 At first Pasteur showed no interest whatever in books or study but devoted his attention to fishing and doing sketches of his companions.
- a. b.  
c. d.
- Q.184 He set him in earnest at school and soon developed the passion for work which marked the whole of the rest of his life.
- a. b. c.  
d.
- Q.185 He showed that carbolic acid and all the other known antiseptics did more damage to the leucocytes than the germs.
- a. b. c.  
d.
- Q.186 There were other my noble deeds. I could not remember them at the time in their entirety. I seemed to have done a good many.
- a. b.  
c. d.
- Q.187 Abd-al-Rahman founded the great Mosque of Cordova as a rival of the two mosques of Islam, which was completed and enlarged by his successors.
- a. b. c.  
d.
- Q.188 "It could have been worse," were all they said. "It could be much worse."
- a. b. c. d.

### CORRECTION:

In each of the following questions, four alternative sentences are given. Choose the CORRECT one and fill the Circle corresponding to that letter in the MCQ Response Form.

- Q.189
- a. The whole city is overhanged with clouds of smoke.  
b. The whole city is overhang with clouds of smoke.  
c. The whole city is overhung with clouds of smoke.  
d. The whole city is overhanging with clouds of smoke.



Q.190

- a. Fleming chose St. Mary's for no better reason than that he had played water-polo against the Hospital team.
- b. Fleming chose St. Mary's for no better reason than he had played water-polo against the Hospital team.
- c. Fleming chose St. Mary's for no better reason except that he had played water-polo against the Hospital team.
- d. Fleming chose St. Mary's for no better reason except he had played water-polo against the Hospital team.

Q.191

- She wrote a novel last year. (Choose the CORRECT passive voice one)
- a. A novel had been written by her last year.
  - b. A novel has been written by her last year.
  - c. A novel was written by her last year.
  - d. A novel written by her last year.

Q.192

- a. He never travelled by air, and he had never been to a talky show.
- b. He had never travelled by air, and never been to a talky show.
- c. He had never travelled by air, and he never been to a talky show.
- d. He had never travelled by air, and he had never been to a talky show.

Q.193

- a. Inside the carton was a button unit and a sealed envelope.
- b. Inside the carton was a button unit and sealed envelope.
- c. Inside the carton were a button unit and sealed envelope.
- d. Inside the carton were a button unit and a sealed envelope.

Q.194

- a. Of course, he made speeches, and fine one's, on many other subjects.
- b. Of course, he made speeches and fine ones, on many other subjects.
- c. Of course, he made speeches, and fine ones on many other subjects.
- d. Of course, he made speeches, and fine ones, on many other subjects.

Q.195

- a. She started to try covering the sad marks of what she had done.
- b. She started to try covering the sad marks of what she did.
- c. She started to try to cover the sad marks of what had she done?
- d. She started to try to cover the sad marks of what she had done.

Q.196

- a. "For the Lord's sake," said Margaret angrily still half-crying, "what's here is bad enough isn't it?"
- b. "For the Lord's sake", said Margaret angrily, still half-crying "what's here is bad enough, isn't it?"
- c. "For the Lord's sake," said Margaret angrily, still half-crying, "what's here is bad enough, isn't it?"
- d. "For the Lord's sake," said Margaret angrily, still half-crying, "What's here is bad enough, isn't it?"

### SENTENCE COMPLETION

Fill in the blanks with appropriate word.

Q.197 Check with your doctor immediately to see if the mole on your face is \_\_\_\_\_ or dangerous.

- a. Benign
- b. Malignant
- c. Chronic
- d. Malevolent

Q.198 Since the airline lost two of my bags, I have \_\_\_\_\_ clothing for my vacation.

- a. Lavish
- b. Scanty
- c. Casual
- d. Outdoor

### SYNONYMS

Choose the word that is most nearly **SIMILAR** in meaning to the word in capital letters.

Q.199 **PEERED**

- a. Looked earnestly
- b. Looked callously
- c. Looked scantily
- d. Looked timidly

### ANTONYMS

Choose the word **OPPOSITE** in meaning to **CAPITALIZED** word given above.

Q.200 **PASSION**

- a. Affection
- b. Languor
- c. Affectation
- d. Candour

# MCQ'S RESPONSE FORM

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**DATE:** 9/11/2020





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- USE BLUE BALL POINT PEN ONLY.
- PLEASE FILL IN THE ROLL NO. CORRECTLY.
- IT IS IMPORTANT THAT THE CIRCLE IS FILLED COMPLETELY AND CORRECTLY AS SHOWN IN THE EXAMPLE BELOW, OTHERWISE THE UNIVERSITY CAN NOT BE HELD RESPONSIBLE.  

CORRECT EXAMPLE:     ✓

INCORRECT EXAMPLES:     X

    X

    X
- DO NOT ERASE A RESPONSE ONCE THE CIRCLE HAS BEEN FILLED IN.
- INCOMPLETELY FILLED CIRCLES WILL NOT BE READ.
- MULTIPLE RESPONSES TO ONE QUESTION IS NOT ALLOWED.
- TEARING OFF THE RESPONSE FORM, FOLDING, STAPLING, CUTTING & PUTTING UNNECESSARY BIODATA AND IDENTIFICATION ON THE FORM WILL LEAD TO AUTOMATIC DISQUALIFICATION OF THE CANDIDATE.

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